

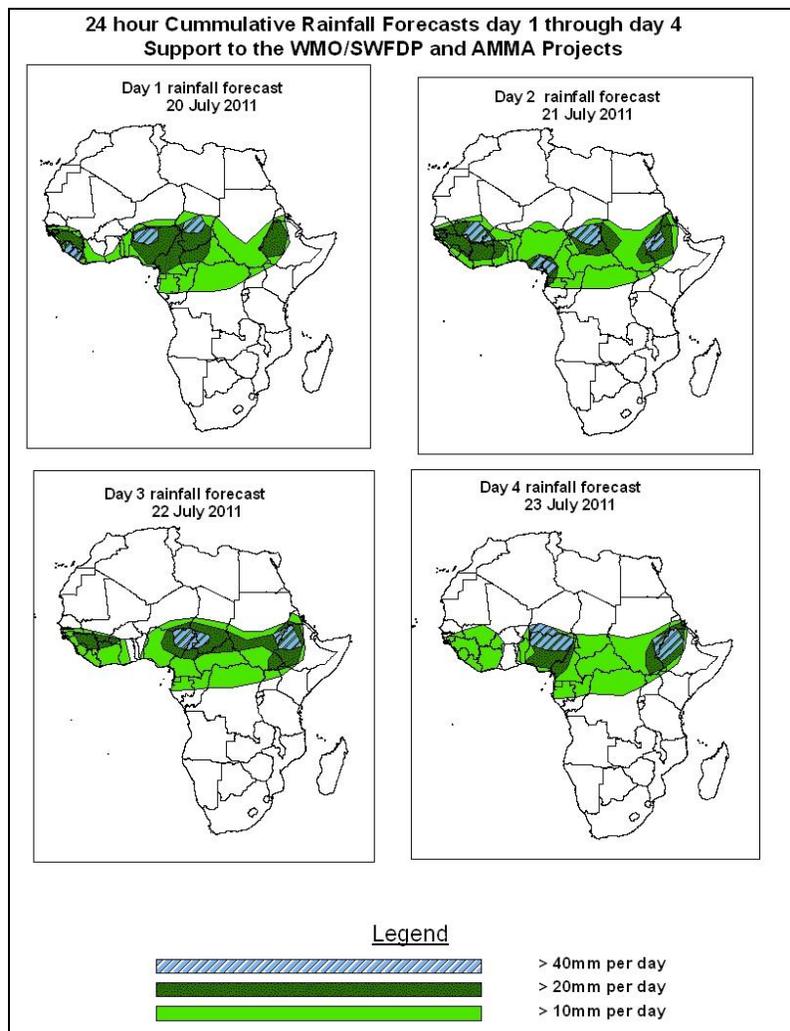


NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid 06Z of 20 July– 06Z of 23 July 2011, (Issued at 10:00Z of 19 July 2011)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of probability of precipitation (POP) exceeded based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the next four days, westward propagating easterly waves across West Africa and strong lower tropospheric convergences over central African region are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Guinea, Sierra Leone, southern Mali, parts of Nigeria and Cameroon, southern Chad. The seasonal monsoon flow is also expected to maintain moderate to heavy rains over parts of Ethiopia, eastern Sudan and Eritrea.

1.2. Models Comparison and Discussion-Valid from 00Z of 19 July 2011

According to the NCEP/WRF, GFS, ECMWF and UKMET models, the monsoon trough with its associated heat lows across the Sahel region is expected to maintain its east-west orientation during the forecast period. The heat low along its western end (near Mauritania and Mali) is expected to show little or no change during the forecast period according to the ECMWF model, while its central pressure value changes from 1004hpa in 24 hours to 1008hpa in 96 hours according to the GFS model. According to the UKMET model, this heat low tends to deepen slightly through 24 to 72 hours, with its central pressure value changing from 1003hpa in 24 hours to 1000hpa in 72 hours. The heat low over the central African region is expected to show little or no change through 24 to 72 hours, according to the ECMWF and GFS models, and it tends to fill up through 72 to 96 hours. The heat low over the Arabian Peninsula also maintains its central pressure value, while slightly shifting to the east. The East African ridge across southeast and East Africa is expected to strengthen gradually through 24 to 96 hours.

The St. Helena High pressure system over the southeast Atlantic Ocean is expected to intensify gradually through 24 to 96 hours, with its central pressure value increasing from 1024hpa in 26 hours to 1028 hpa in 96 hours, according to the GFS model. The Mascarene high pressure system over the southwest Indian Ocean is also expected to intensify from a central pressure value of 1024 in 24 hours to 1027 in 96 hours.

At the 850hpa level, the seasonal moist southeasterly flow from the Indian Ocean across East Africa, turning into a southwesterly flow as it passes northern DRC and CAR, and Sudan, is expected to converge over parts of Sudan and western Ethiopia through 24 hours. With the eastward shift of the Mascarene anticyclone, the flow from the southwest Indian Ocean is expected to become more of a southwesterly through 48 to 96 hours across eastern and southeastern African countries. Southwesterly to westerly flow from the Atlantic Ocean is expected to dominate the flow over eastern parts of the Gulf of Guinea, the central African region and portions of the Horn of Africa. A lower tropospheric cyclonic circulation is expected to move from the Mali/Niger border to southern Mali during the forecast period. Another cyclonic vortex is expected to move from the Sudan/Chad border to the Chad/Niger border through 24 to 96 hours. A cyclonic vortex in the vicinity of Senegal is expected to fill up and will be replaced by an anticyclonic flow during the forecast period.

At 700mb level, two easterly waves, one across the western end of West Africa, and the other one across central and eastern parts of the Gulf of Guinea are expected to dominate the flow over western and central African countries. The wave in the vicinity of Senegal is expected to leave the West African coast through 24 hours, while the wave in the vicinity of northeast Nigeria is expected to propagate towards Burkina Faso during the forecast period.

At 500hpa, easterly winds with moderate intensity (10 to 25knots) are expected to dominate the flow over western Sudan, central African and the Gulf of Guinea and southern Sahel region, with the stronger winds associated with the African easterly Jet are expected over northwest Nigeria and Burkina Faso.

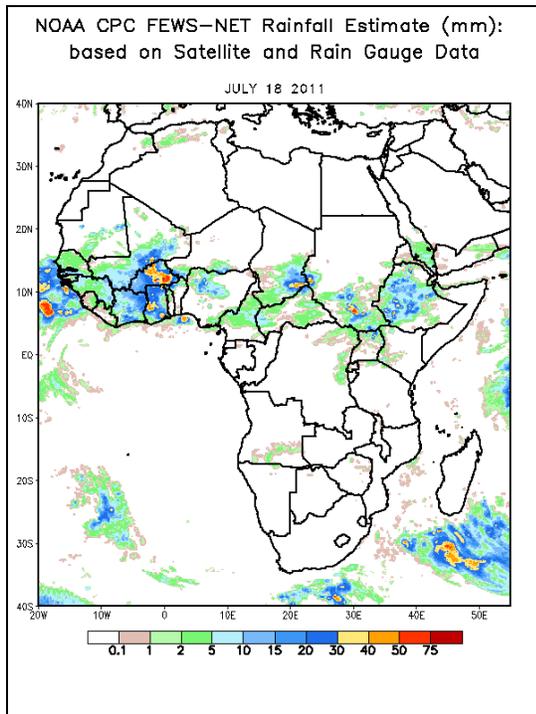
A zone of strong wind (>110Kts) at 200hpa level associated with the Sub Tropical westerly Jet in the southern hemisphere is expected to propagate between southeast Atlantic Ocean and southwest Indian Ocean, across South Africa during the forecast period.

In the next four days, westward propagating easterly waves across West Africa and strong lower tropospheric convergences over central African region are expected to enhance rainfall in their respective regions. Hence, there is an increased chance for heavy rainfall over Guinea, Sierra Leone, southern Mali, parts of Nigeria and Cameroon, southern Chad. The seasonal monsoon flow is also expected to maintain moderate to heavy rains over parts of Ethiopia, eastern Sudan and Eritrea.

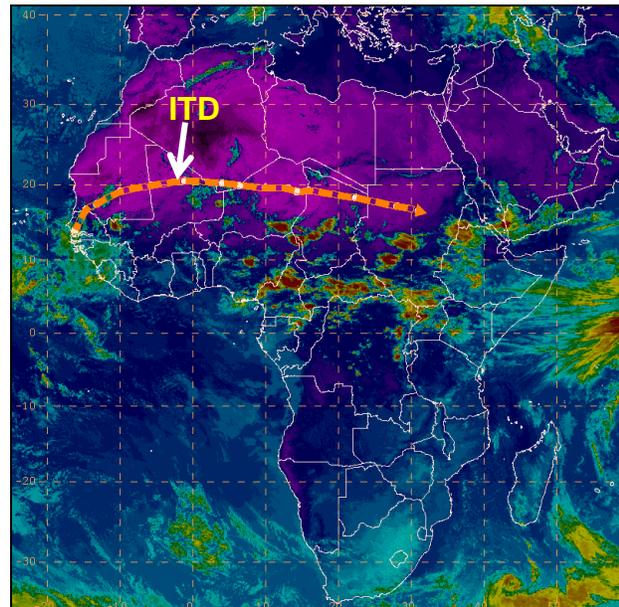
2.0. Previous and Current Day Weather Discussion over Africa (18 July -19 July 2011)

2.1. Weather assessment for the previous day (18 July 2011): During the previous day, locally heavy rainfall was observed over Burkina Faso, Ghana, southeastern Chad, South Sudan and Ethiopia.

2.2. Weather assessment for the current day (19 July 2011): Intense clouds are observed over western end of West Africa, parts of central African countries and the GHA region.



IR Satellite Image (valid 1545Z) and position of ITD,
based on 1200Z Surface Analysis; 19 July 2011



Previous day rainfall condition over Africa (top Left) based on the NCEP CPCE/RFE and current day cloud cover (top right) based on IR Satellite image

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